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EDUCATION:

- B.S., 1969, Fisheries, University of Washington
- M.S., 1971, Fisheries, University of Washington , Thesis title: *The feeding ecology of the rock greenling, Hexagrammos lagocephalus, in the inshore waters of Amchitka Island, Alaska.*

QUALIFICATIONS:

As a field ecologist, Charles (“Si”) Simenstad has studied estuarine and coastal marine communities throughout Puget Sound, the Washington coast, and Alaska for close to 30 years. Much of this research has focused on the role of structure and change in the ability of estuarine and coastal marine ecosystems to support fisheries resources, and the associated ecological (e.g., food web) interactions that are sensitive to anthropogenic effects, such as estuarine wetland alteration. Recent research emphasis has included: ecological mechanisms whereby estuarine and coastal wetlands and other shallow habitats support fish (especially juvenile Pacific salmon) and wildlife; basic ecosystem-, community- and habitat-level interactions, with emphasis on predator-prey relationships; the sources, organization and flow of organic matter through food webs; restoration, creation and enhancement of estuarine and coastal wetland ecosystems; and using ecological approaches to evaluating the success of anthropogenic stressors, such as the introduction of exotic species, and ecosystem manipulations, such as freshwater flow alteration. Since 1990, he has been particularly dedicated to: (1) coordinating the Wetland Ecosystem Team (WET), a small team of research scientists, educators, and graduate students that conducts both basic and applied research on these topics; (2) acting as Principal Investigator of the Columbia River Estuarine Turbidity Maxima (CRETM) Land-Margin Ecosystem Research (LMER) program, a NSF-supported ecosystem-scale study of ecological couplings between physical, geochemical and biological processes in the lower Columbia River and estuary; (3) chairing the Nearshore Working Group (“NearPRISM”) in the University’s PRISM initiative; and (4) leading WET’s CALFED research on wetland restoration patterns and rates in the Sacramento-San Joaquin rivers delta and San Francisco Bay.

RESEARCH INTERESTS-EXPERTISE:

- Estuarine and nearshore marine ecosystem structure and dynamics, focusing on trophic interactions, especially those of detritus-based food webs; use of stable isotopes to trace trophic pathways
- Estuarine ecology and life history diversity of juvenile salmonid fishes, and predator-prey interactions with selected prey organisms such as epibenthic harpacticoid copepods and gammarid amphipods
- Coastal wetland restoration ecology; functional assessment of restored, created and enhanced wetlands
- Coastal ecosystem management, with emphasis on watershed influences on estuarine processes
- Community ecology of nearshore marine fish assemblages of the North Pacific, especially related to structuring influence of predators

POSITIONS HELD:

- Research Associate Professor, School of Aquatic and Fishery Sciences, University of Washington, July 2001-present; Coordinator, Wetland Ecosystem Team, August 1990-present

- Fisheries Biologist II to IV, Fisheries Research Institute, University of Washington, November 1972 to June 2001;
- Affiliate Staff Scientist, Battelle Pacific Northwest Laboratories, 1994-present
- Fisheries Biologist II, Fisheries Research Institute, University of Washington, 1971-1972
- Research Assistant, Fisheries Research Institute, University of Washington, 1969-1971

HONORS AND POSITIONS:

- 1993 University of Washington, PSO Award for Excellence
- 1994 Fellow, American Association for the Advancement of Science
- 1998-2001 *Estuaries* Editorial Board; Associate Editor, *Habitat Restoration and Wetlands*

PROFESSIONAL MEMBERSHIP:

- American Association for the Advancement of Science (Fellow)
- American Institute of Fisheries Research Biologists
- Ecological Society of America
- Estuarine and Brackish Water Sciences Association
- Estuarine Research Federation
- International Association of Meiobenthologists
- Pacific Estuarine Research Society
- Sigma Xi
- Society for Ecological Restoration
- Society of Wetland Scientists
- Western Society of Naturalists
- World Association of Copepodologists

PRINCIPAL CURRENT RESEARCH ACTIVITIES:

- *Chinook Salmon Investigations in Shilshole Bay: I. Development of Scientific Scope of Work*; January 2001-April 2001; Principal Investigator; City of Seattle; \$15,005.
- *Assessment of Estuarine and Nearshore Habitats for Threatened Salmon Stocks in the Hood Canal and Eastern Strait of Juan de Fuca, Washington State: Phase 2*; Point No Point Treaty Council; Principal Investigator, in collaboration with Ralph Garono (Earth Designs Consultants); \$55,778.
- *Development of a Spatially-Explicit, Biophysical Model of Puget Sound Nearshore Processes*; February 2001 - December 2003; Washington Sea Grant; Principal Investigator, in collaboration with A. Devol, M. Hershman, and M. Logsdon (UW), H. Shipman (WDOE), and K. Fresh (WDFW); \$197,368
- *Ecological Function of Large Woody Debris (LWD) Supporting Juvenile Pacific Salmon and Other Fish Production in Oligohaline-Brackish Estuarine Sloughs*; February 2001- - January 2004; Washington Sea Grant; Principal Investigator (with J. Cordell, UW); \$57,380
- *High Resolution Remote Sensing of Habitat Structure in the Lower Columbia River and Estuary: Phase I - Imagery and Data Acquisition*; January 2001 - June 2001; Columbia River Foundation; Principal Investigator; \$25,000
- *Understanding Tidal Marsh Restoration Processes and Patterns: Validating and Extending the "BREACH" Conceptual Model*; September 2000-December 2003; CALFED (U.S. Bureau Reclamation); Principal Investigator, in collaboration with University of New Orleans (D. Reed), Phil Williams & Assoc. (P. Williams, M. Orr), San Francisco State University (S. Bollens) and California Department of Water Resources (IEP); \$1,042,246
- *Impacts of Ferry Terminals on Migrating Juvenile Salmon, Phase III: Field Assessment of Epibenthic Prey Impacts*; March 2000-December 2001; Washington State Department of Transportation; Principal Investigator (with J. Cordell, R. Thom); \$99,560

- *Grays Harbor Fish Mitigation Monitoring: Monitoring of Created and Natural Sloughs Ten Years Post-Construction*; September 1999 - December 2001; U.S. Army Corps of Engineers; Principal Investigator (with J. Cordell, R. Thom); \$106,000
- *Juvenile Salmon Rearing in Restoring Wetlands of the Salmon River Estuary: Functional Development with Age*; February 1998-December 2003; joint Washington Sea Grant Program and Oregon Sea Grant Program; Principal Investigator with Jeff Cordell (UW) and Daniel Bottom (US Natl. Mar. Fish. Serv.); \$341,123 [to be supplemented]
- *LMER Research in the Columbia River Estuary: The Role of Estuarine Turbidity Maxima (ETM) Processes Coupling Watershed, Estuary and Ocean*; September 1994-August 2000; National Science Foundation-Land-Margin Ecosystem Program; Principal Investigator (with D. A. Jay, D. J. Reed, J. A. Baross, F. G. Prall, L. F. Small, L. J. Bledsoe, and A. Baptista); \$3,000,000
- *Feeding Ecology of Juvenile Chinook Salmon Rearing in Lake Washington*; March 1999-December 2001; Wash. Dept. Fish Wildl.; Principal Investigators (with J. Cordell), \$121,532
- *Pilot Studies of Juvenile Salmon Migration and Rearing Habitat in the Vicinity of the Western Lake Washington Ship Canal and Shilshole Bay*; April 1999-December 2001; King Co., Dept. Natural Res.; Principal Investigator (with J. Cordell), \$54,181

PUBLICATIONS:

Peer-Reviewed Journal articles:

Isakson, J. S., C. A. Simenstad, and R. L. Burgner. 1971. Fish communities and food chains in the Amchitka area. *BioScience* **21**:666-670.

Simenstad, C. A., J. A. Estes, and K. W. Kenyon. 1978. Aleuts, sea otters, and alternate stable-state communities. *Science* **200**:403-411.

Volk, E. C., R. C. Wissmar, C. A. Simenstad, and D. M. Eggers. 1984. The relationship between otolith microstructure and the growth of juvenile chum salmon under different prey conditions. *Can. J. Fish. Aquat. Sci.* **41**:126-133.

Simenstad, C. A., and J. R. Cordell. 1985. Structural dynamics of epibenthic zooplankton in the Columbia River Delta. *Verh. Internat. Verein. Limnol.* **22**:2173-2182.

Simenstad, C. A., and R. C. Wissmar. 1985. d13C evidence of the origins and fates of organic carbon in estuarine and nearshore marine food webs. *Mar. Ecol.-Prog. Ser.* **22**:141-152.

Wissmar, R. C., and C. A. Simenstad. 1988. Energetic constraints of juvenile chum salmon (*Oncorhynchus keta*) migrating in estuaries. *Can. J. Fish. Aquat. Sci.* **45**:1555-1560.

Duggins, D. O., C. A. Simenstad, and J. A. Estes. 1989. Magnification of secondary production by kelp detritus in coastal marine ecosystems. *Science* **245**:170-174.

Shreffler, D. K., C. A. Simenstad, and R. M. Thom. 1990. Temporary residence by juvenile salmon of a restored estuarine wetland. *Can. J. Fish. Aquat. Sci.* **47**:2079-2084.

Jones, K. K., C. A. Simenstad, D. L. Higley, and D. L. Bottom. 1990. Structure, distribution, and standing crop of benthos, epibenthos, and plankton in the Columbia River estuary. *Prog. Oceanogr.* **25**:211-242.

Sherwood, C. R., D. A. Jay, R. B. Harvey, P. Hamilton, and C. A. Simenstad. 1990. Historical Changes in the Columbia River Estuary. *Prog. Oceanogr.* **25**:299-357.

- Simenstad, C. A., C. D. McIntire, and L. F. Small. 1990. Consumption processes and food web structure in the Columbia River estuary. *Prog. Oceanogr.* **25**:271-298.
- Simenstad, C. A., L. F. Small, C. D. McIntire, D. A. Jay, and C. R. Sherwood. 1990. An Introduction to the Columbia River Estuary: Brief History, Prior Studies, and the Role of the CREDDP Studies. *Prog. Oceanogr.* **25**:1-14.
- Cordell, J. R., C. A. Simenstad, and C. A. Morgan. 1992. Establishment of the Asian calanoid copepod *Pseudodiaptomus inopinus* in the Columbia River estuary. *J. Crustacean Biol.* **12**:260-269.
- Cordell, J. R., C. A. Simenstad, and C. A. Morgan. 1992. The Asian calanoid copepod *Pseudodiaptomus inopinus* in Pacific Northwest rivers--biology of an invasive zooplankton. *N.W. Environ. J.* **8**:164-165.
- Shreffler, D. K., C. A. Simenstad, and R. M. Thom. 1992. Juvenile salmon foraging in a restored estuarine wetland. *Estuaries* **15**:204-213.
- Simenstad, C. A., and J. R. Cordell. 1992. Species and assemblage diversity of nearshore epibenthic harpacticoid copepods--natural and human influences. *N.W. Environ. J.* **8**:154-155.
- Weitkamp, L. A., R. C. Wissmar, C. A. Simenstad, K. L. Fresh, and J. G. Odell. 1992. Gray whales foraging on ghost shrimp (*Callianassa californiensis*) in littoral sand flats of Puget Sound, U.S.A. *Can. J. Zool.* **70**: 2275-2280.
- LMER Coordinating Committee (Boynton, W., J. T. Hollibaugh, D. Jay, M. Kemp, J. Kremer, C. Simenstad, S. V. Smith, and I. Valielas). 1992. Understanding changes in coastal environments: the Land Margin Ecosystems Research Program. *EOS* **73**:481-485.
- Simenstad, C. A., D. O. Duggins, and P. D. Quay. 1993. High turnover of inorganic carbon in kelp habitats as a cause of d13C variability in marine food webs. *Mar. Biol.* **116**: 147-160.
- Hassett, R. P., D. O. Duggins, and C. A. Simenstad. 1993. Egg production rates of the neritic marine copepod *Acartia tumida* Willey in the Aleutian Archipelago. *Polar Biol.* **13**: 515-523.
- Ruckelshaus, M. H., R. C. Wissmar, and C. A. Simenstad. 1994. Scale of habitat quality relevant to mussel growth in a well-mixed, temperate estuary. *Estuaries* **17**: 898-912.
- Boesch, D. F., M. N. Josselyn, A. J. Mehta, J. T. Morris, W. K. Nuttle, C. A. Simenstad, and D. J. P. Swift. 1994. Scientific assessment of coastal wetland loss, restoration and management in Louisiana. *J. Coast. Res.*, Spec. Issue **20**. 103 pp.
- Simenstad, C. A., and R. M. Thom. 1995. *Spartina alterniflora* as an invasive halophyte in Pacific Northwest estuaries. *Hortus Northwest* **6**:9-12,38-40.
- Simenstad, C. A., and K. L. Fresh. 1995. Influence of intertidal aquaculture on benthic communities in Pacific Northwest estuaries: scales of disturbance. *Estuaries* **18**:43-70.
- Jay, D. A., and C. A. Simenstad. 1996. Downstream effects of water withdrawal in a small, West Coast river basin: erosion and deposition on the Skokomish River delta. *Estuaries* **19**: 501-517.
- Simenstad, C. A., and R. M. Thom. 1996. Assessing functional equivalency of habitat and food web support in a restored estuarine wetland. *Ecol. Appl.* **6**:38-56.

- Paveglio, F. L., K. M. Kilbride, C. E. Grue, C. A. Simenstad, and K. L. Fresh. 1996. Use of Rodeo® and X-77® Spreader to control smooth cordgrass (*Spartina alterniflora*) in a southwestern Washington estuary: I. Environmental fate. *Environ. Toxicol. Chem.* **15**: 961-968.
- Simenstad, C. A., J. R. Cordell, L. Tear, L. A. Weitkamp, F. L. Paveglio, K. M. Kilbride, K. L. Fresh and C. E. Grue. 1996. Use of Rodeo® and X-77® Spreader to control smooth cordgrass (*Spartina alterniflora*) in a southwestern Washington estuary: II. Effects on benthic microflora and invertebrates. *Environ. Toxicol. and Chem.* **15**: 969-978.
- Crump, B. C., J. A. Baross and C. A. Simenstad. 1997. Dominance of particle-attached bacteria in the Columbia River estuary, USA. *Aquat. Microb. Ecol.* **14**: 7-18.
- Morgan, C. A., J. R. Cordell, and C. A. Simenstad. 1997. Sink or swim? Copepod population maintenance in the Columbia River estuarine turbidity maxima region. *Mar. Biol.* **129**:309-317.
- Miller, J. A., and C. A. Simenstad. 1997. A comparative assessment of a natural and created estuarine slough as rearing habitat for juvenile chinook and coho salmon. *Estuaries* **20**:792-806.
- Prahl, F. P., L. F. Small, B. Sullivan, J. Cordell, C. A. Simenstad, B. C. Crump, and J. A. Baross. 1998. Biogeochemical gradients in the lower Columbia River. *Hydrobiologia* **361**:37-52.
- Feist, B. E., and C. A. Simenstad. 2000. Expansion rates and recruitment frequency of exotic smooth cordgrass, *Spartina alterniflora* (Loisel) colonizing unvegetated littoral flats in Willapa Bay, Washington. *Estuaries* **23**:267-274.
- Simenstad, C. A., and J. R. Cordell. 2000. Ecological assessment criteria for restoring anadromous salmonid habitat in Pacific Northwest estuaries. *Ecol. Engineering* **15**:283-302.
- Books/proceedings chapters:**
- Simenstad, C. A., J. S. Isakson, and R. E. Nakatani. 1977. Marine fish communities of Amchitka Island, AK. Pp. 451-492 in M. L. Merritt and R. G. Fuller (eds.). **The Environment of Amchitka Island, Alaska**. U.S. ERDA, TID-26712. 682 pp.
- Simenstad, C. A., K. L. Fresh, and E. O. Salo. 1982. The role of Puget Sound and Washington coastal estuaries in the life history of Pacific salmon: An unappreciated function. Pp. 343-364 in V. S. Kennedy (ed.) **Estuarine Comparisons**. Academic Press, New York. 709 pp.
- Wissmar, R. C., and C. A. Simenstad. 1984. Surface foam chemistry and productivity in the Duckabush River estuary. Pp. 331-348 in V. Kennedy (ed.), **The Estuary As A Filter**. Academic Press, Orlando, Florida. 511 pp.
- Simenstad, C. A., and G. M. Cailliet (eds.). 1986. **Contemporary Studies on Fish Feeding: The Proceedings of GUTSHOP'84**. Dev. Environ. Biol. Fishes 7. 334 pp.
- Simenstad, C. A., and G. M. Cailliet. 1986. Contemporary studies on fish feeding: Summary of GUTSHOP'84. Pp. 321-326 in C. A. Simenstad and G. M. Cailliet (eds.) **Contemporary Studies of Fish Feeding: The Proceedings of GUTSHOP'84**. Dev. Environ. Biol. Fishes 7. 334 pp.
- Simenstad, C. A., D. A. Jay, and C. R. Sherwood. 1992. Impacts of watershed management on land-margin ecosystems: the Columbia River estuary as a case study. Pp. 266-306 in R. J. Naiman (ed.),

Watershed Management: Balancing Sustainability and Environmental Change. Springer-Verlag. 543 pp.

Simenstad, C. A., and R. M. Thom. 1992. Restoring wetland habitats in urbanized Pacific Northwest estuaries. Pp. 423-472 in G. W. Thayer (ed.), **Restoring the Nation's Marine Environment**, Maryland Sea Grant, College Park, Maryland. 716 pp.

Simenstad, C.A., D.J. Reed, D.A. Jay, J.A. Baross, F.G. Prahl and L.F. Small. 1994. Land-margin ecosystem research in the Columbia River estuary: investigations of the couplings between physical and ecological processes within estuarine turbidity maxima. Pp. 437-444 in K. Dyer & B. Orth (eds.), **Changing Particle Flux in Estuaries: Implications from Science to Management** (ECSA22/ERF Symposium, Plymouth, September 1992), Olsen & Olsen Press, Fredensborg.

Simenstad, C.A., C.A. Morgan, J.R. Cordell, and J.A. Baross. 1994. Flux, passive retention, and active residence of zooplankton in Columbia River estuarine turbidity maxima. Pp. 473-482 in K. Dyer & B. Orth (eds.), **Changing Particle Flux in Estuaries: Implications from Science to Management** (ECSA22/ERF Symposium, Plymouth, September 1992), Olsen & Olsen Press, Fredensborg.

Baross, J. A., B. Crump and C. A. Simenstad. 1994. Elevated microbial loop activities in the Columbia River estuarine turbidity maxima. Pp. 459-464 in K. Dyer & B. Orth (eds.), **Changing Particle Flux in Estuaries: Implications from Science to Management** (ECSA22/ERF Symposium, Plymouth, September 1992), Olsen & Olsen Press, Fredensborg.

Simenstad, C. A., M. Dethier, C. Levings, and D. Hay. 1997. The Land-Margin Interface of Coastal Temperate Rain Forest Ecosystems: Shaping the Nature of Coastal Interactions. Pp. 149-187 (Chap. 7) in P. Schoonmaker, B. von Hagen, and E. Wolf (eds.) **The Rain Forests of Home: Profile of a North American Bioregion**. Ecotrust/Interain Pacific and Island Press. 480 pp.

Simenstad, C. A., S. B. Brandt, A. Chalmers, R. Dame, L. A. Deegan, R. Hodson, and E. D. Houde. 2000. Habitat-Biotic Interactions. Pp. 427-455 (Chap. 16) in J. E. Hobbie (ed.), **Estuarine Science: A Synthetic Approach to Research and Practice**. Island Press, Washington, DC. 539 pp.

Simenstad, C. A., W. G. Hood, R. M. Thom, D. A. Levy and D. L. Bottom. 2000. Landscape structure and scale constraints on restoring estuarine wetlands for Pacific Coast juvenile fishes. Pp. 597-630 in M. P. Weinstein and D. A. Kreeger (eds.), **Concepts and Controversies in Tidal Marsh Ecology**, Kluwer Academic Publ., Dordrecht. 864 pp.

Garono, R. J., C. A. Simenstad, and R. Robinson. 2000. Using High Spatial Resolution Hyperspectral Imagery to Describe Eelgrass (*Zostera marina*) Landscape Structure in Hood Canal, WA. Pp. 582-591 in Proc. 17th Internatl. Conf. The Coastal Soc., Portland, OR USA.

Bottom, D. L., and C. A. Simenstad. 2001. Bottlenecks, barges, and super fish: Rethinking conservation of estuaries and salmon. Pp. 87-95 In **Oregon Salmon: Essays on the State of the Fish at the Turn of the Millennium**. Oregon Trout, Portland, OR. 175 pp.

Book Reviews:

Simenstad, C. A. 1988. The ecology and management of wetlands, Vol. I, Ecology of wetlands. D. D. Hook and others (ed.s), Timber Press, Portland, OR, 1988. *Northwest Environ. J.* 4:368-369.

Simenstad, C. A. 1989. Common strategies of anadromous and catadromous fishes. M. J. Dadswell, R. J. Klauda, C. M. Moffitt, R. L. Saunders, R. A. Rulifson, and J. E. Cooper (eds.), Symposium 1, American Fisheries Society, Bethesda, Maryland, 1987. *Copeia* **19**:89(4).

Other Miscellaneous Publications:

Simenstad, C. A., and J. A. Estes. 1980. The historic role of the sea otter in the ecology of the Aleutian Islands. Pp. 56-59 in L. Morgan (chief editor), *The Aleutians. Alaska Geographic* **7**:56-59.

Simenstad, C. A. 1983. The ecology of estuarine channels of the Pacific Northwest: A community profile. U.S. Fish Wildl. Serv., Biol. Serv. Prog. FWS/OBS 83/05. 250 pp.

Simenstad, C. A., D. Jay, C. D. McIntire, W. Nehlsen, C. R. Sherwood, and L. F. Small. 1984. The Dynamics of the Columbia River Estuarine Ecosystem, Vol. I and II. Col. Riv. Est. Data Dev. Prog., Astoria, OR.

Simenstad, C. A. and J. R. Cordell. 1987. Assemblage structure, microhabitat distribution, and food web linkages of epibenthic crustaceans in Padilla Bay. Res. Note, *Northwest Environ. J.* **3**:157-158.

Wissmar, R. C., and C. A. Simenstad. 1987. Organic carbon and nitrogen sources and food web linkages in Padilla Bay. Res. Note, *Northwest Environ. J.* **3**:156-157.

Simenstad, C. A., C. D. Tanner, R. M. Thom, and L. Conquest. 1991. Estuarine Habitat Assessment Protocol. UW-FRI-8918/-8919, Rep. to U.S. Environ. Protect. Agency-Region 10, Wetland Ecosystem Team, Fish. Res. Inst., Univ. Wash., Seattle, WA. Report, 191 pp., Appendices.

Simenstad, C. A., C. D. Tanner, F. Weinmann and M. Rylko. 1991. The Estuarine Habitat Assessment Protocol. *Puget Sound Notes* **25**: 1-4.

Thom, R. M., C. A. Simenstad, and C. Tanner. 1991. The Puget Sound Wetland Restoration Monitoring Protocol. Pp. 55-60 in Proc. Symp. Biological Criteria: Research and Regulation, EPA-440/5-91-005, U.S. Environ. Protect. Agency, Office of Water, Washington, DC.

Simenstad, C. A., J. B. Anderson, J. R. Cordell, and L. Hallum. 1993. Analysis of changes in benthic and epibenthic invertebrate communities in Commencement Bay, Washington. Rep. to U.S. Army Corps Engineers-Seattle Dist., David Evans & Assoc., Inc., Bellevue, WA. 88 pp + appendices.

Simenstad, C. A. 1994. Faunal associations and ecological interactions in seagrass communities of the Pacific Northwest coast. Pp. 10-17 in S. Wyllie-Echeverria, A. Olson, and M. J. Hershman (eds.). **Seagrass Science and Policy in the Pacific Northwest: Proceedings of a Seminar Series**, School of Marine Affairs, University of Washington, Seattle, WA. 60 pp.

Coastal Oceanography Subcommittee, UNOLS Fleet Improvement Committee (L.D. Wright, J. Bash, P. Betzer, T. Church, R. Dinsmore, M. Langseth, T. Malone, N. Marcus, C. Nittrouer, M. Scranton, and C. Simenstad & the participants in a UNOLS coastal oceanography workshop). 1994. Coastal oceanography: future trends and vessel requirements. University-National Oceanographic Laboratory System. 29 pp.

Simenstad, C. A., and B. E. Feist. 1996. Restoration potential of diked estuarine wetlands: Inferring fate and recovery rate of historically-breached sites. US EPA, Region 10, Rep. EPA 910/R-96-005, Seattle, WA. 115 pp.

Simenstad, C. A., T. M. Thom, and A. M. Olson (eds.). 1998. Mitigating potential impacts of ferry terminal siting and design on eelgrass habitat. WSG 98-05, Wash. Sea Grant, Univ. Wash., Seattle, WA. 103 pp.

Simenstad, C. A., J. R. Cordell, R. M. Thom, D. K. Shreffler, B. Nightengale and J. A. Schafer. 1999. Ferry terminal impacts on juvenile salmon migrating through Puget Sound nearshore environments. *Puget Sound Notes* **42**: 9-12.

Simenstad, C. A., B. J. Nightengale, R. M. Thom and D. K. Shreffler. 1999. Impacts of ferry terminals on juvenile salmon migrating along Puget Sound shorelines, Phase I: synthesis of state of knowledge. Final Res. Rept., Res. Proj. T9903, Task A2, Wash. State Dept. Transportation, Washington State Trans. Center (TRAC), Seattle, WA. 116 pp + appendices.

Simenstad, C., J. Toft, H. Higgins, J. Cordell, M. Orr, P. Williams, L. Gimaldo, Z. Hymanson and D. Reed. 1999. Preliminary results from the Sacramento-San Joaquin Delta Breached Levee Wetland Study (BREACH). *IEP Newsletter* **4**: 15-21.

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Cederholm, C. J., D. H. Johnson, R. E. Bilby, L. G. Dominguez, A. M. Garrett, W. H. Graeber, E. L. Greda, M. D. Kunze, B. G. Marcot, J. F. Palmisano, R. W. Plotnikoff, W. G. Pearcy, C. A. Simenstad and P. C. Trotter. 2000. Pacific salmon and wildlife--ecological contexts, relationships, and implications for management. Special Ed. Tech. Rep., prep. for D. H. Johnson and T. A. O'Neil (Manag. Dirs.), Wildlife-Habitat Relationships in Oregon and Washington. Wash. Dept. Fish. Wildl., Olympia, WA. 138 pp.

Simenstad, C. A. 2000. Tidal wetland restoration: promise and uncertainty (extended abstract). Pp. 40-41 in **Restoration Primer--State of the Estuary 2000**. San Francisco Estuary Project, San Francisco, CA.

In press/revision or submitted:

Bottom, D. L., C. A. Simenstad, A. M. Baptista, D. A. Jay, J. Burke, K. K. Jones, E. Casillas and M. Schiewe. 2001. Salmon at River's End: The Role of the Estuary in the Decline and Recovery of Columbia River Salmon. University of Washington Press and NOAA-National Marine Fisheries Service, Seattle, WA

Gray, A., C. A. Simenstad, D. L. Bottom and T. Cornwell. In revision. Contrasting functional performance of juvenile salmon in recovering wetlands of the Salmon River estuary, Oregon USA. *Restor. Ecol.*

Lubetkin, S. C., and C. A. Simenstad. Submitted. Two multi-source mixing models using conservative tracers to estimate food web sources and pathways. *Appl. Ecol.*

Fresh, K. L., M. I. Carr, F. L. Paveglio, K. M. Kilbride, and C. A. Simenstad. In revision. Use of Rodeo® and X-77® Spreader to control smooth cordgrass (*Spartina alterniflora*) in a southwestern Washington estuary: III. Effects on the seagrass, *Zostera japonica*. *Wetlands*

Manuscripts In preparation;

- J. R. Cordell, V. T. Luiting,, A. M. Olson, and C. A. Simenstad. In prep. Ecological effects of the introduced cordgrass, *Spartina alterniflora*, on the benthic community structure of Willapa Bay, Washington. *Ecol. Appl.*
- Lubetkin, S. C., and C. A. Simenstad. Submitted. Two multi-source mixing models using conservative tracers to estimate food web sources and pathways.
- Garono, R. J., C. A. Simenstad, and R. R. Robertson. In prep. Using high spatial resolution hyperspectral imagery to describe eelgrass (*Zostera marina*) landscape structure in Hood Canal, WA. Coasts 2000 proceedings.
- Simenstad, C. A., and K. L. Fresh. In prep. The estuarine imperative: Rites of passage by juvenile salmon through Puget Sound and coastal Washington estuaries.
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Shreffler, D. K., R. M. Thom, C. A. Simenstad, J. R. Cordell, and E. P. Salo. 1990. The Lincoln Avenue wetland system in the Puyallup River estuary, Washington: Phase III report; year three monitoring, January-December 1988. FRI-UW-8916, Rep. to Port of Tacoma, Fish. Res. Inst., Univ. Wash., Seattle, WA. 54 pp.

- Thom, R. M., Charles A. Simenstad, Jeffery R. Cordell, David K. Shreffler, and Laura Hamilton. 1990. The Lincoln Avenue wetland system in the Puyallup River estuary, Washington: Phase IV report; year four monitoring, January-December 1989. FRI-UW-9004, Rep. to Port of Tacoma, Fish. Res. Inst., Univ. Wash., Seattle, WA. 44 pp.
- Thom, R. M., C. A. Simenstad, J. R. Cordell, and L. Hamilton. 1991. The Gog-Li-Hi-Te wetland system in the Puyallup River estuary, Washington; Phase V Report, Year five monitoring, January-December 1990. FRI-UW-9108. Fish. Res. Inst., Univ. Wash., Seattle, WA. 44 pp.
- Simenstad, C. A., K. L. Fresh, J. Flemming, and D. Clarke. 1991. Effects of estuarine habitat modifications on anadromous salmonids: A literature survey. FRI-UW-9123. Fish. Res. Inst., Univ. Wash., Seattle, WA. 47 pp.
- Simenstad, C. A., J. R. Cordell, and L. A. Weitkamp. 1991. Effects of substrate modification on littoral flat meiofauna: Assemblage structure changes associated with adding gravel. FRI-UW-9124. Fish. Res. Inst., Univ. Wash., Seattle, WA. 91 pp.
- Simenstad, C. A., J. R. Cordell, W. G. Hood, J. A. Miller and R. M. Thom. 1992. Ecological status of a created estuarine slough in the Chehalis River estuary: Report of monitoring in created and natural estuarine sloughs, January-December 1991. FRI-UW-9206. Fish. Res. Inst., Univ. Wash., Seattle, WA. 49 pp.
- Simenstad, C. A., L. A. Weitkamp, and J. R. Cordell. 1993. Effects of substrate modification on littoral flat epibenthos: Assemblage structure changes associated with predator exclusion nets. FRI-UW-9310. Fish. Res. Inst., Univ. Wash., Seattle, WA. 50 pp.
- Simenstad, C. A., J. R. Cordell, J. A. Miller, W. G. Hood, and R. M. Thom. 1993. Ecological status of a created estuarine slough in the Chehalis River estuary: Assessment of created and natural estuarine sloughs, January-December 1992. FRI-UW-9305. Fish. Res. Inst., Univ. Wash., Seattle, WA. 56 pp.
- Simenstad, C. A., J. R. Cordell, and L. M. Tear. 1993. Effects of glyphosate (Rodeo®) and surfactant (AAPOE, X-77® Spreader) on a mudflat community in Willapa Bay, Washington: Results of an experiment to evaluate the effects of herbicide control of *Spartina alterniflora*. FRI-UW-9315. Fish. Res. Inst., Univ. Wash., Seattle, WA. (in press).
- Miller, J. A., and C. A. Simenstad. 1994. Growth of juvenile coho salmon in natural and created estuarine habitats: A comparative study using otolith microstructure analysis. FRI-UW-9405. Fish. Res. Inst., Univ. Wash., Seattle, WA. 30 pp.
- Miller, J. A., and C. A. Simenstad. 1994. Otolith microstructure preparation, analysis, and interpretation: A potential habitat assessment tool. FRI-UW-9406. Fish. Res. Inst., Univ. Wash., Seattle, WA.
- Cordell, J. R., L. M. Tear, C. A. Simenstad, S. M. Wenger, and W. G. Hood. 1994. Duwamish River Coastal America restoration and reference sites: results and recommendations from year one pilot and monitoring studies. FRI-UW-9416, Fish. Res. Inst., School Fish., Univ. Wash., Seattle, WA. 109 pp.
- Cordell, J. R., L. M. Tear, C. A. Simenstad, and W. G. Hood. 1996. Duwamish River Coastal America restoration and reference sites: results from 1995 monitoring studies. FRI-UW-9612, Fish. Res. Inst., School Fish., Univ. Wash., Seattle, WA. 75 pp.

Simenstad, C. A., and B. E. Feist. 1996. Restoration potential of diked estuarine wetlands: Inferring fate and recovery rate of historically-breached sites. EPA 910/R-96-005, US Environ. Protect. Agency-Region 10, Seattle, WA. 115 pp.

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Simenstad, C. A., R. M. Thom, and A. M. Olson (eds.). 1997. Mitigation between regional transportation needs and preservation of eelgrass beds. Final Report WA-RD 421.1, Res. Proj. T9903, Task 51, Washington State Department of Transportation, Olympia, WA. Appendices I (143 pp.) and II.

Simenstad, C. A., B. J. Nightengale, R. M. Thom, D. K. Shreffler, W. M. Gardiner and J. R. Cordell. 1999. Impacts of ferry terminals on juvenile salmon migrating along Puget Sound shorelines, Phase I: synthesis of state of knowledge. Res. Rep., Res. Proj. T9903, Task A2, to Wash. State Transport. Comm. and U.S. Dept. Transport., Univ. Wash., Seattle, WA, and Battelle Mar. Sci. Lab., Sequim, WA.

CURRENT MEMBERSHIP:

- Scientific Advisory Board, Port Townsend Marine Science Center, April 1986-present
- Research Advisory Committee, Padilla Bay National Estuarine Research Reserve, 1989-present
- Winchester Tidelands Restoration Advisory Group, South Slough National Estuarine Research Reserve, June 1993-present
- Board of Advisors, University of Washington Educational Outreach Certificate Program in Wetland Science and Management; April 1994-present
- Committee of Science Advisors (CSA), San Francisco Estuary Institute; May 1996-present
- Coastal Environment Science and Technology (CEST) Panel, US-Japan Agreement on Natural Resources (UNJR); January 1998-present
- Scientific Advisory Group (SAG), Interagency Ecological Program (IEP), San Francisco Bay; December 1998-present
- Man and Water AB, International Network (MAWN); 1999-present
- Committee on Mitigating Wetland Losses, National Academy of Sciences (NAS), National Research Council (NRC); January 2000-present
- Nearshore Technical Committee, Central Puget Sound Watershed Forum; January 2000-present
- Science Work Group, Lower Columbia River Estuary Program; April 2000-present
- Citizens Advisory Committee for Central Waterfront Master Plan, City of Seattle; October 2000-present
- Participant, Environmental Windows for Dredging Workshop, National Academy of Sciences (NAS), National Research Council (NRC); March 2001
- Board of Advisors, University of Washington Educational Outreach Program in Environmental Regulation; April 2001-present

PAST MEMBERSHIP/INVOLVEMENT:

- Co-chairman, 1976 and 1978 Fish Food Habits workshops (GUTSHOP 1976 and 1978) at Astoria, Oregon, October 1976, and Lake Wilderness, WA, October 1978, respectively
- Convener, Ecological Implications of Enhancement session, 1979 Annual Meeting, Pacific N.W. Chapter, American Fisheries Society, February 1979, Bellingham, WA
- Chairman, Estuarine, and Nearshore Influences upon Pink and Chum Salmon Run Variability session, 1980 NE Pac. Pink and Chum Salmon Workshop, Sitka, AK. February 1980

- Co-Chairman, GUTSHOP '81 Fish Food Habits Studies Workshop, 6-9 December 1982, Pacific Grove, CA.
- Chairman, Mini-symposium on Fish Stomach Contents Analyses. Oct. 20, 1982. Inst. Freshwat. Res., Drottningholm, Sweden
- Co-Chairman, 1982-1983 N.E. Pac. Pink and Chum Salmon Workshop, Rosario, Orcas Island, WA. January, 1983
- Delegate, Estuarine Research Federation Delegation on Estuarine Research to People's Republic of China, March 24-April 9, 1983
- Panel Member, Marine and Aquatic Ecosystems Panel; First Glacier Bay Science Symposium, Glacier Bay Lodge, AK. September 23-26, 1983.
- Co-Chairman, Working Group on Estuaries and Inlets. Salmonid Oceanography Workshop, 8-10 November 1983, Oregon State Univ., Mar. Sci. Center, Newport, OR
- Co-Chairman, Gutshop '84 Fish Food Habits Workshop, 2-6 December 1984, Pacific Grove, CA.
- Member, Technical Advisory Committee, "Wetland Functions, Rehabilitation, and Creation in the Pacific Northwest: The State of Our Understanding," April-May 1986 Workshop, Port Townsend, WA. Wash. State Dept. Ecology
- Member, Ad-hoc Committee on Mitigation Strategies in Urbanized Estuaries of the Pacific Northwest, April 1986-1991
- Resource Expert, Ocean Use Planning for the Exclusive Economic Zone, invitation-only workshop, January 1986
- Member, Habitat Monitoring Subcommittee, Puget Sound Water Quality Authority, March-May 1987
- Resource Expert, "Saving Our Bays, Sounds, and Great Lakes: An Activists' Agenga", Save the Bay Conference, 19-23 October 1987, Warwick, RI
- Session Leader, Habitat Modification Session, First Symposium on Puget Sound Research, Puget Sound Water Quality Authority, March 1988
- Participant, Freshwater Inflow/San Francisco Bay Workshop, Interagency Ecological Study Program, 12-14 July, 1988, Sausalito, CA
- Convenor, Effects of Dredging Upon Anadromous Fishes on the Pacific Coast, workshop, 8-9 September 1988, Seattle, WA
- Organizer, Estuarine Wetland Mitigation Protocol Development Workshop, 16-19 April 1989, Port Townsend, WA
- Co-Convenor, "Wetlands and Seagrass Beds as Critical Habitats" session, Tenth Biennial International Estuarine Research Conference, 8-12 October 1989, Baltimore, MD
- Member, Technical Subcommittee, Pacific Northwest OCS Task Force, 1989-1991
- Member, Scientific Resource Panel, Lower Columbia River Bi-State Water Quality Program, November 1990-December 1996
- Member, Washington Department of Ecology, Oil Spill Compensation Schedule Scientific Advisory Committee; Marine Habitats and Salmon Subcommittees; 1991-1992
- Participant, Entrapment Zone Workshop, Interagency Food Chain Working Group, 16 December 1991, Concord, CA
- Member, W. Alton Jones Panel on Coastal Marsh Loss and Restoration in Louisiana, September 1993-March 1994
- Member, Technical Resource Panel, An Ecosystem Approach to Understanding Coastal Resources Workshop, Research and Education for Managing the Coastal Resources of the Olympic Peninsula, November 16-17, 1993
- Technical Program Co-chair, Society of Wetland Scientists, 15th National Meeting, May 30-June 3, 1994
- Session Chair, The Terrestrial/Marine Interface, Conference on the Environment and People of the Coastal Temperate Rainforest, Whistler, BC, Canada, August 29-31, 1994
- Panelist, Workshop on Ecological Carrying Capacity for Columbia Basin Salmon Habitats, Portland, OR, September 6-7, 1995

- Panelist, 1st Workshop on Restoration of the San Francisco Bay-Delta-River: Choosing Indicators of Ecological Integrity, October 28, 1995
- Co-chair, Land Margin Ecosystem Research session, Estuarine Research Federation 13th International Conference, Corpus Christi, Texas, November 12-16, 1995
- Member, Technical Team, Chinook River Basin Restoration Plan, August-December 1996
- Co-Chair, Biological Importance of Flocculation/Aggregation session, ECSA27/ERF'96, Middleburg, NL, September 16-20, 1996
- Member, Corresponding Scientific Committee, 3rd International Congress Limnology-Oceanography, "Interfaces: Oceans, Rivers and Lakes--energy and substance transfers at Interfaces session, Nante, France, October 7-9, 1996; Co-Chair, Interface Between Nutrients and Physical Medium session
- Member, Tillamook Bay National Estuary Project Scientific/Technical Advisory Committee, March 1994-June 1996
- Member, Fish and Wildlife Work Group, Lower Columbia River Bi-State Water Quality Program, 1993-1996
- Invited speaker; "Ecological Assessment Criteria for Restoring Anadromous Salmonid Habitat in Pacific Northwest Estuaries," w/ JR Cordell, Goal Setting and Success Criteria for Coastal Habitat Restoration conference, 12-15 January 1998, Charleston, SC.
- Plenary speaker; "Evaluating Coastal Wetland Restoration: Structure, Process or Function," Recent Research in Coastal Louisiana: Natural System Function and Response to Human Influences, 3-5 February 1998, Lafayette, LA.
- Representative, Coastal Environment Science and Technology (CEST) Panel meeting, US-Japan Agreement on Natural Resources (UNJR), 17-20 March 1998, Yokosuka, Japan
- Coordinator, University of Washington-US Environmental Protection Agency, Region 10 cooperative agreement for interdisciplinary studies on wetland ecology , June 1992 - December 1998
- Long-term Monitoring Subcommittee, Lower Columbia River Estuary Program, May 1997-March 1999
- Science Review Group, San Francisco Bay Area Wetlands Ecosystem Goals Project, December 1996-May 1999
- University of Washington Professional Staff Organization, Board, June 1995-June 1999
- *Ex officio*, University of Washington Faculty Council on Research, November 1995-June 1999

REVIEWER:

Manuscripts:

American Naturalist
Canadian Journal of Fisheries and Aquatic Sciences
Canadian Journal of Zoology
Coastal Management
Coastal Shelf Research
Copeia
Ecological Applications
Ecological Monographs
Ecology
Environmental Biology of Fishes
Environmental Management
Estuaries
Fishery Bulletin
Hydrobiologia
Journal of Experimental Marine Biology and Ecology
Limnology and Oceanography
Marine Biology
Marine Ecology-Progress Series

Northwest Environmental Journal

Northwest Science

Oikos

Restoration Ecology

Science

Vegetatio

Proposals & Other Documents:

Alaska Sea Grant Program

California Coastal Commission

California Sea Grant Program

Georgia Sea Grant Program

Hudson River Foundation

Maryland Sea Grant Program

Mississippi-Alabama Sea Grant Program

National Science Foundation

National Estuarine Research Reserve Program

National Fish and Wildlife Federation

National Marine Fisheries Service-National Science Foundation (US GLOBEC)

National Sea Grant Program

NOAA-West Coast National Undersea Research Center

New Hampshire Sea Grant Program

New Jersey Sea Grant Program

North Carolina Sea Grant Program

Olympic Natural Resource Center

Oregon Sea Grant Program

Science Council of British Columbia

Texas Sea Grant Program

Tillamook Bay National Estuary Program

University of Washington-Royalty Research Fund

Washington Sea Grant Program

Western Regional Center, National Institute for Global Environmental Change

William H. Donner Foundation

Woods Hole Oceanographic Institution Sea Grant Program

Teaching:

- *Estuaries of the Pacific Northwest*; School of Fisheries, University of Washington; Fish 522C Seminar Series, Winter Quarter 1985 (co-taught with R. C. Wissmar)
- *Estuarine Dynamics of the Pacific Northwest*; School of Fisheries, University of Washington; Fish 499E/507E Estuaries Select Program, Spring Quarter 1985 (co-taught with R. C. Wissmar)
- *Estuarine Fishes of the Pacific Northwest: Love, Life and Death on the Flats*; Western Washington University Continuing Education 478E-850, Spring 1989, Padilla Bay National Estuarine Research Reserve (shortcourse)
- *Applied Ecology of Wetlands*; School of Fisheries, University of Washington; Fish507C, Summer Quarter 1990 (co-taught with R. M. Thom)
- *Wetlands: Function, Mitigation and Restoration*; 2-day short course, NOAA Coastal Resource Coordinators, Seattle, Washington , May 1991 (co-taught with R. M. Thom)
- *Applied Ecology and Management of Wetlands*; University of Washington, Extension; Fish507TA, Winter Quarter 1992 (co-taught with F. Weinmann and K. Kunz)
- *Wetlands Restoration Training Course*; 3-day short course, NOAA Restoration Center, Silver Spring, Maryland, (co-taught with R. Thom and C. Hackney)

- *Seminar Series: How Can We Better Integrate Behavior and Ecology into Fisheries Management*, School of Fisheries, Fish507S, Winter Quarter 1992 (co-taught with D. Stouder)
- *Applied Ecology and Management of Wetlands*; University of Washington, Extension; Fish507U, Winter Quarter 1993 (co-taught K. Kunz)
- *A Landscape Understanding of Wetland Processes, Stresses and Preservation*; University of Washington, Certificate Program in Wetland Science and Management; Winter Quarters 1995 (co-taught with J. Karr), 1996, 1997, 1998 (co-taught with J. Karr), 1999 (co-taught with J. Karr), 2000, 2001